

$\frac{d}{dt} \left(\frac{\partial L}{\partial v} \right) = \frac{\partial L}{\partial x}$ $\frac{d}{dt} \left(\frac{\partial L}{\partial v} \right) = \frac{\partial L}{\partial x}$

- 5

10

15

Sub
G12
cont

through said plurality of output terminals; and

a third circuit provided at a next stage of said plurality of second circuits as said final stage of said first current mirror circuit, to output said output current determined by said first circuit.

3. The driving circuit according to claim 2, wherein said second current mirror circuit converts said polarity of said output current outputted from said third circuit and outputs said converted output current through a reference current output terminal.

4. The driving circuit according to claim 3, wherein said first circuit, said second circuits and said third circuit included in said first current mirror circuit are constituted by PNP transistors, and said second current mirror circuit is constituted by NPN transistors.

Sub
G137

5. The driving circuit according to claim 4, wherein at least one of said first circuit and said second current mirror circuit has a base current compensating circuit.

6. The driving circuit according to claim 3, wherein said first circuit, said second circuits and said third circuit included in said first current

mirror circuit are constituted by P-channel MOS
5 transistors, and

said second current mirror circuit is
constituted by N-channel MOS transistors.

7. The driving circuit according to claim 5,
wherein said power supply terminal is pulled out from
a center of said common power supply line.

8. The driving circuit according to claim 5,
wherein said power supply terminal is pulled out from
a plurality of positions of said common power supply
line.

9. The driving circuit according to claim 1,
wherein said first current mirror circuit comprising:
a reference current input terminal to which said
reference current is supplied;

a ground terminal which is connected to a
ground;

a first circuit provided between said reference
current input terminal and said ground terminal, to
determine said plurality of output currents;

10 a common ground line which extends from said
ground terminal;

a plurality of output terminals;

a plurality of second circuits provided between

Sub
B2⁵

said common ground line and said plurality of output
15 terminals, to output a part of said plurality of
output currents determined by said first circuit
through said plurality of output terminals; and

a third circuit provided at a next stage of said
plurality of second circuits as said final stage of
20 said first current mirror circuit, to output said
output current determined by said first circuit.

10. The driving circuit according to claim 9,
wherein said second current mirror circuit converts
said polarity of said output current outputted from
said third circuit and outputs said converted output
5 current through a reference current output terminal.

11. The driving circuit according to claim 10,
wherein said first circuit, said second circuits and
said third circuit included in said first current
mirror circuit are constituted by NPN transistors, and
5 said second current mirror circuit is constituted by
PNP transistors.

Sub
G14
12. The driving circuit according to claim 11,
wherein at least one of said first circuit and said
second current mirror circuit has a base current
compensating circuit.

13. The driving circuit according to claim 10, wherein said first circuit, said second circuits and said third circuit included in said first current mirror circuit are constituted by N-channel MOS

5 transistors, and

said second current mirror circuit is constituted by P-channel MOS transistors.

14. The driving circuit according to claim 12, wherein said ground terminal is pulled out from a center of said common ground line.

15. The driving circuit according to claim 12, wherein said ground terminal is pulled out from a plurality of positions of said common ground line.

16. A constant current driving apparatus comprising a plurality of driving circuits connected through terminals in series, each of which comprises:

a first current mirror circuit which outputs a
5 plurality of output currents each of which corresponds to a reference current; and

a second current mirror circuit which converts a polarity of an output current outputted from a final stage of said first current mirror circuit and outputs
10 the converted output current.

17. The constant current driving apparatus according to claim 16, wherein said first current mirror circuit comprising:

a reference current input terminal to which said
5 reference current is supplied;

a power supply terminal to which power is
supplied;

a first circuit provided between said reference
current input terminal and said power supply terminal,
10 to determine said plurality of output currents;

a common power supply line which extends from
said power supply terminal;

a plurality of output terminals;

a plurality of second circuits provided between
15 said common power supply line and said plurality of
output terminals, to output a part of said plurality
of output currents determined by said first circuit
through said plurality of output terminals; and

a third circuit provided at a next stage of said
20 plurality of second circuits as said final stage of
said first current mirror circuit, to output said
output current determined by said first circuit.

18. The constant current driving apparatus according to claim 17, wherein said second current mirror circuit converts said polarity of said output current outputted from said third circuit and outputs said

5 converted output current through a reference current output terminal.

19. The constant current driving apparatus according to claim 18, wherein said first circuit, said second circuits and said third circuit included in said first current mirror circuit are constituted by PNP

5 transistors, and said second current mirror circuit is constituted by NPN transistors.

20. The constant current driving apparatus according to claim 19, wherein at least one of said first circuit and said second current mirror circuit has a base current compensating circuit.

21. The constant current driving apparatus according to claim 18, wherein said first circuit, said second circuits and said third circuit included in said first current mirror circuit are constituted by P-channel

5 MOS transistors, and

said second current mirror circuit is constituted by N-channel MOS transistors.

22. The constant current driving apparatus according to claim 16, wherein said first current mirror circuit comprising:

a reference current input terminal to which said

5 reference current is supplied;

a ground terminal which is connected to a ground;

a first circuit provided between said reference current input terminal and said ground terminal, to
10 determine said plurality of output currents;

a common ground line which extends from said ground terminal;

a plurality of output terminals;

a plurality of second circuits provided between
15 said common ground line and said plurality of output terminals, to output a part of said plurality of output currents determined by said first circuit through said plurality of output terminals; and

a third circuit provided at a next stage of said
20 plurality of second circuits as said final stage of said first current mirror circuit, to output said output current determined by said first circuit.

23. The constant current driving apparatus according to claim 22, wherein said second current mirror circuit converts said polarity of said output current outputted from said third circuit and outputs said
5 converted output current through a reference current output terminal.

24. The constant current driving apparatus according

to claim 23, wherein said first circuit, said second circuits and said third circuit included in said first current mirror circuit are constituted by NPN

5 transistors, and said second current mirror circuit is constituted by PNP transistors.

*Suby
G147*
25. The constant current driving apparatus according to claim 24, wherein at least one of said first circuit and said second current mirror circuit has a base current compensating circuit.

26. The constant current driving apparatus according to claim 23, wherein said first circuit, said second circuits and said third circuit included in said first current mirror circuit are constituted by N-channel

5 MOS transistors, and

said second current mirror circuit is constituted by P-channel MOS transistors.